enisa

EUROPEAN
UNION AGENCY
FOR CYBERSECURITY

From January 2019 to April 2020

Information leakage

ENISA Threat Landscape

Overview

A data breach occurs when data, for which an organisation is responsible, is subject to a security incident resulting in a breach of confidentiality, availability or integrity.[1] A data breach frequently causes an information leakage, which is one of the major cyber threats, covering a wide variety of compromised information from personal identifiable information (PII), financial data stored in IT infrastructures to personal health information (PHI) kept in healthcare providers' repositories.

When security breaches are encountered in the headlines of bulletins, blogs, newspapers, and technical reports, the focus is mostly either on adversaries or on the catastrophic failure of the cyber-defence processes and techniques. Nevertheless, the undisputable truth is that, despite the impact or scope of such an event, the breach is usually caused by an individual's action or by an organisational process failure.[2]

__Findings

2.013_ confirmed data disclosures in 2019

During the first half of 2019, the organisations experienced an 11% increase in disclosures compared with 2018.[5,6]

14%_ of all incidents in the financial sector were data disclosures

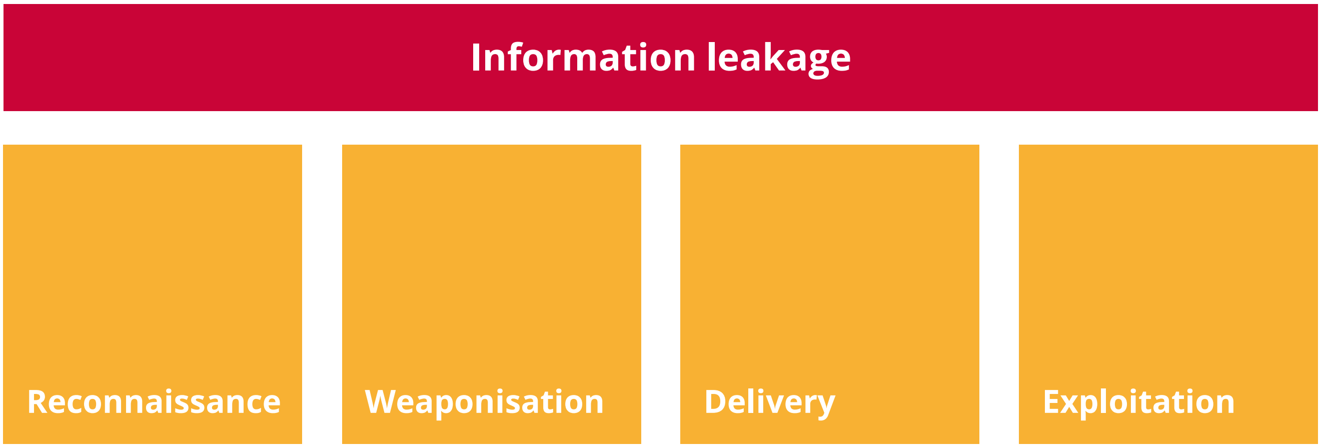
In 47% of them, the victim was a bank.[9]

4,1_ billion data records were exposed globally in the first half of 2019

E-mail and passwords were at the top of the list.[10]

€5,46_ million is the highest cost incurred by healthcare sector[11]

Kill chain



Information leakage

Reconnaissance

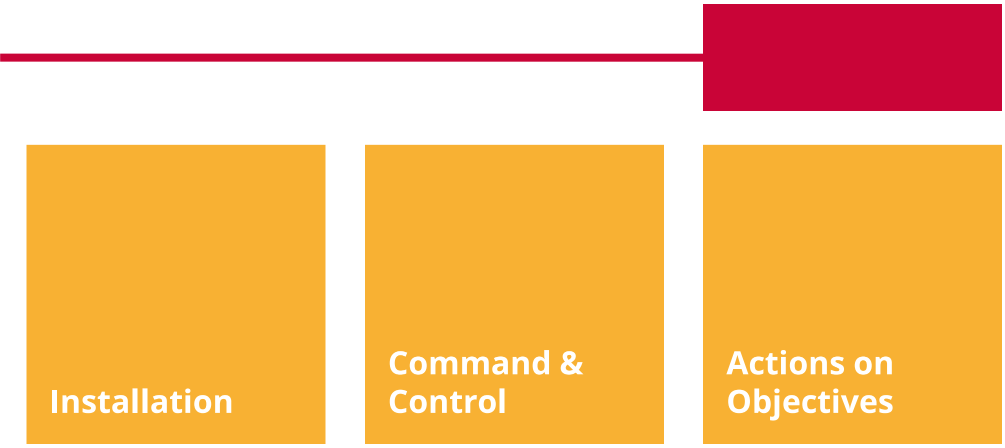
Weaponisation

Delivery

Exploitation

🟥 *Step of Attack Workflow*

🟧 *Width of Purpose*



Installation

Command & Control

Actions on Objectives

The Cyber Kill Chain® framework was developed by Lockheed Martin, adapted from a military concept related with the structure of an attack. To study a particular attack vector, use this kill-chain diagram to map each step of the process and reference the tools, techniques and procedures used by the attacker.

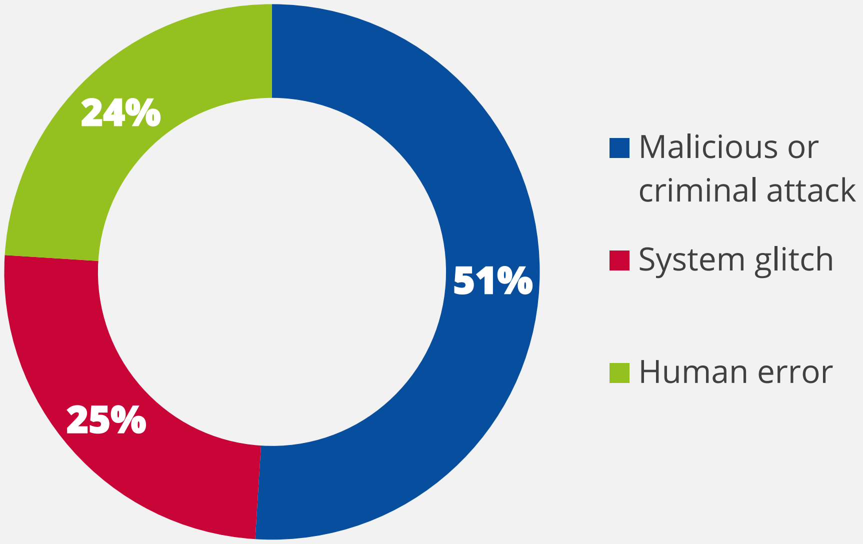
MORE INFORMATION

Incidents

_ Top data leak incidents

- In January 2019, the independent researcher Troy Hunt found 773 million users’ e-mail addresses and passwords in the **cloud-storage service MEGA**. Hunt named this breached dataset as ‘Collection#1’ and notified the service ‘Have I been Pwned?’ so it could notify the account owners to change their login passwords for accessing MEGA platform.[12] In the same month, rogue individuals released personal details, private communications, and financial information of hundreds of **German politicians**, with targets representing every political party but the far-right AfD (Alternative für Deutschland).[6]
- In February 2019, more than 61 million accounts were culled from 16 websites and put up for sale on the dark web. Site owners of Whitepages, Dubsmash, Armor Games, 500px and ShareThis saw their users' stolen data sold for less than US $20.000 (ca. €17.000) in Bitcoin.[13]
- In March 2019, hundreds of millions of **Facebook** and **Instagram** users saw that their credentials were exposed by the social media company's poor password storage management.[14]
- In April 2019, 12,5 million medical records of pregnant women were exposed in India, because of a leaky government server belonging to a healthcare agency. The medical information exposed was related to the pre-conception and pre-natal diagnostic techniques act, an Indian law passed which that banning pre-natal sex determination in an attempt to prevent Indian families from aborting unborn girls and skewing the sex ratio towards boys.[15]

- In May 2019, **DoorDash**, a food delivery service, suffered a data breach that affected almost 5 million users. The subsequent investigation determined that information such as names, e-mail addresses, delivery addresses, order history, phone numbers and passwords had been accessed. The company said that the last four digits of some consumers' credit cards and bank account numbers had also been accessed.[16]
- In June 2019, the **American Medical Collection Agency (AMCA)** began notifying clients of a system hack that breached the billing and medical data of some of its clients, including 11,9 million records of **Quest Diagnostics**, which is one of the largest blood testing companies in the United States. According to a recent Securities and Exchange Commission 8K filing, a hacker had gained access to the AMCA's system for nearly eight months between 1 August 2018 and March 30 2019.[17]



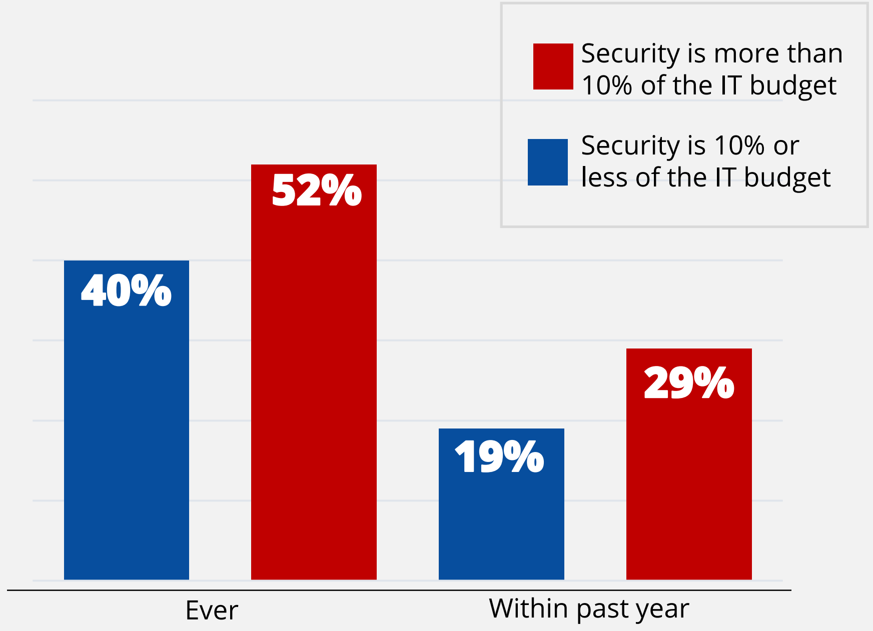
Information disclosure root causes. Source: Ponemon, IBM Security[22]

Incidents

_ Top data leak incidents

- In July 2019, the financial corporation **Capital One** suffered an information leakage that affected 100 million credit card applications, 140.000 social security numbers and 80.000 bank account numbers. Capital One reported that no credit card account numbers or login credentials were exposed. However, the breach exposed names, addresses, postal codes, phone numbers, e-mail addresses and birth dates.[18]
- In August 2019, 160 million records of **MoviePass** were left unencrypted. Because the company's database wasn't password-protected, it left customers' credit card numbers and other details exposed. The database remained online for several days.[19] Meanwhile, a massive leak exposed 27,8 million biometric staff records held by the **British Metropolitan Police, banks and defence contractors**. The database was administered by Suprema, a company that collaborates with the British police.[20,21]
- In September 2019, more than 218 million **'Words with Friends'** player accounts were hacked. The users' database included data from Android and iOS players who had installed the game before September 2. The hacker team 'Gnostic players' accessed information such as players' names, e-mail addresses, login identities and more.[23]
- In October 2019, Adobe left 7,5 million Creative Cloud customer records on an insecure database. The information leakage included the users' e-mail addresses and payment status.[24]
- In November 2019, Facebook gave inappropriate access to the profile data of its 70.000 customers to about 100 app developers. One of them stole the personal data and later used these data to scam them.[25]

- In December 2019, a **Dutch politician** faced 3 years in prison for hacking 100 women’s iCloud accounts and leaking nude pictures. The politician was found to have hacked the women's personal iCloud accounts with credentials found in earlier public database breaches.[26] During the same month, the details of over 10,7 million **Metro-Goldwyn-Mayer (MGM)** resort guests were disclosed on a hacking forum. The leaked information included full customer name, home addresses, phone numbers, e-mail addresses, and birth dates.[27]

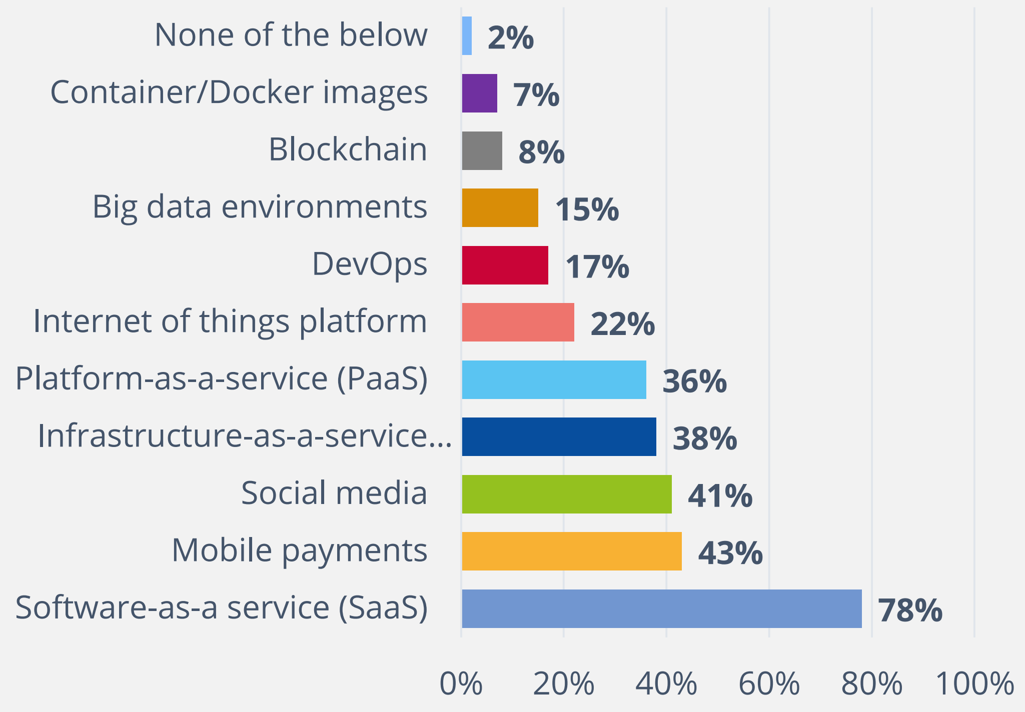


Breach incident rates by level of security spent. Source: CNET[14]

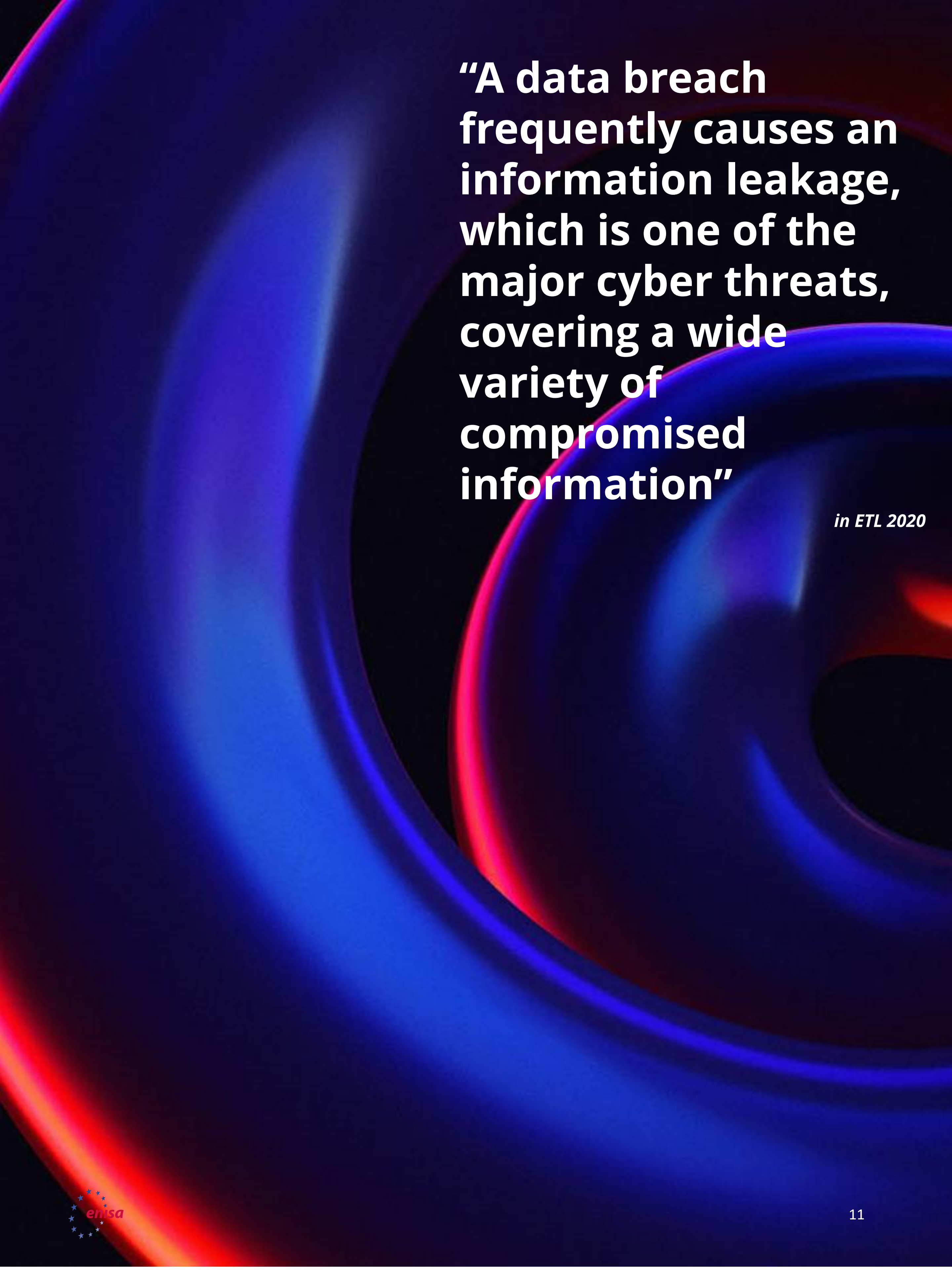
Attack vectors

_How

The primary attack vector in information leakage is insiders. This term is used to describe a person with an interest in 'exfiltrating' important inside information on behalf of a third party. Other common attack vectors used by this threat are misconfigurations, vulnerabilities and human errors.



Types of sensitive or regulated data stored. Source: Thales[40]



“A data breach frequently causes an information leakage, which is one of the major cyber threats, covering a wide variety of compromised information”

in ETL 2020

Mitigation

_Proposed actions

- Anonymise, pseudonymise, minimise and cipher data in accordance with the provisions of the EU GDPR, the California Consumer Privacy Act (CCPA), and the China's Multi-level Protection of Information Security (MLPS 2.0).[28,29,30,31] Always check the regulation commitments for counterpart entities who do not fall under bi- or multi-lateral initiatives.[32, 33,34]
- Store data only on secure IT assets.[35]
- Limit user access privileges under the need-to-know principle.[35,36] Revoke access privileges of anyone who is not an employee.[35]
- Educate and train your organisation's personnel periodically.[35,37]
- Use technology tools to avoid possible data leakages, such as vulnerability scans, malware scans and data loss prevention (DLP) tools. Deploy data and portable system and device encryption, and secure gateways.[36,38]
- A business continuity plan (BCP) is crucial for dealing with a data breach. This plan outlines the type of data being stored and their location, and what potential liabilities could arise when implementing data security and recovery actions. A BCP entails an effective incident response, which aims to address, manage, and rectify the damages caused by such an incident.[39]

“In many cases, companies or organisations are not aware of a data breach happening in their environment because of the sophistication of the attack and sometimes the lack of visibility and classification in their information system.”

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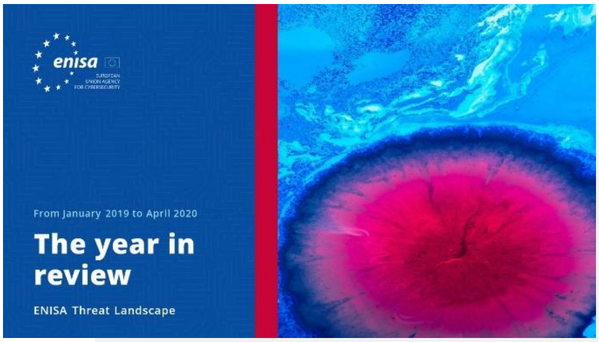

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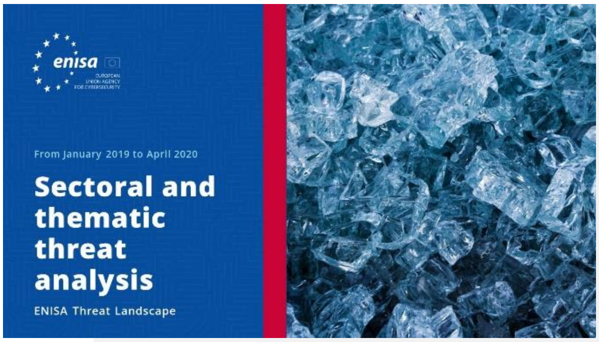

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_ The agency

The European Union Agency for Cybersecurity, ENISA, is the Union's agency dedicated to achieving a high common level of cybersecurity across Europe. Established in 2004 and strengthened by the EU Cybersecurity Act, the European Union Agency for Cybersecurity contributes to EU cyber policy, enhances the trustworthiness of ICT products, services and processes with cybersecurity certification schemes, cooperates with Member States and EU bodies, and helps Europe prepare for the cyber challenges of tomorrow. Through knowledge sharing, capacity building and awareness raising, the Agency works together with its key stakeholders to strengthen trust in the connected economy, to boost resilience of the Union's infrastructure, and, ultimately, to keep Europe's society and citizens digitally secure. More information about ENISA and its work can be found at www.enisa.europa.eu.

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